

The Way from Quality Management System to the National Quality Award

Milan Hutyra
VSB – Technical University of Ostrava,
Ostrava-Poruba, Czech Republic
milan.hutyra@vsb.cz

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ABSTRACT

VŠB – Technical University of Ostrava (VSB-TUO) is the first and till now the only public university in Czech Republic that is certified according to ISO 9001. One of faculties of VSB -TUO, Faculty of Mechanical Engineering was awarded by Czech Republic National Quality Award 2007 in the category public sector. The contribution describes the way of VSB – TUO from implementation of quality management system to implementation of EFQM Excellence Model as step beyond ISO 9001 certification.

1. INTRODUCTION

Currently the universities are situated at **competitive environment**. It is the principal reason why they have to identify as the organisations providing the services that satisfy their customers.

They provide:

- the university level education,
- R&D
- the cooperation with business and public sector

The quality of provided services is the result of quality of processes that are used to secure it. Quality of processes is determined by quality of management of university. If we want to improve the quality of services provided by university, we have to start with improving the quality of university management. To lead and operate an organization successfully, it is necessary to manage it in a systematic and visible manner. It was the reason, that we decided at VSB- TUO to implement QMS as inherent part of university management.

2. VSB – TECHNICAL UNIVERSITY OF OSTRAVA.

More than 150 years history of VSB – TUO is closely connected with the development of mining and metal extraction, which was the oldest industry in the Austro-Hungarian Empire. That is why the Emperor Frantz Josef I. decreed (1849) that a mining vocational school be set up in Příbram for the northern countries, and another in Leoben for the southern countries of the Empire. In 1904, the Příbram Academy was given the status of University – Vysoká škola báňská (VSB). The President of the Czechoslovakia, E. Beneš, issued a decree No. 49 on 8th September 1945 by which the university was moved from Příbram to Ostrava. This ended the history of Příbram and opened a new era in the history of the university in Ostrava, the centre of a widespread chemistry, heavy engineering and mining region.

The 17th November 1989 was a historic event in the life of Czech universities and in the whole society. Significant changes have been made at VSB – TUO. The reorganisation of all courses and the new provision of modern branches of study transferred VSB –TUO to a modern polytechnic university.

VSB –TUO currently consists of seven faculties:

- Faculty of Economics,
- Faculty of Civil Engineering
- Faculty of Mechanical Engineering
- Faculty of Electrical Engineering and Computer Science
- Faculty of Mining and Geology
- Faculty of Metallurgy and Material Engineering
- Faculty of Safety Engineering.

There are more than 22 000 students in bachelor degree, master degree and doctoral degree programmes in daytime, distance and combined studies.

3. IMPLEMENTATION OF QUALITY MANAGEMENT SYSTEM AT VSB – TECHNICAL UNIVERSITY OF OSTRAVA.

Currently there are two basic concepts of QMS:

- the concept of ISO 9000
- the concept of TQM.

The concept of ISO 9000 is the holistic prescriptive approach based on International standards ISO 9000 series. These standards define what is necessary to do (ISO 9001) and how to do the things (ISO 9004).

The concept of TQM is a non prescriptive approach, more or less a philosophy. TQM is applied according to different models that enable to evaluate the maturity of management system in the organisation. EFQM Model Excellence is used in Europe.

After revision of ISO 9000 series at 2000 we can observe the convergence of both concepts. The both of them are now based on more or less similar principles as you can see at Table I.

Table I – The comparison of principles of ISO 9000:2000 and TQM

ISO 9000:2000 Quality Management Principles	TQM - the EFQM Fundamental Concepts of Excellence
Customer focus	Customer focus
Leadership	Leadership & Constancy of purpose
Involvement of people	People development & involvement
Process approach	Management by processes & facts
System approach to management	Corporate Social Responsibility
Continual improvement	Continuous learning, improvement & innovations
Factual approach to decision making	Results orientations
Mutually beneficial supplier relationship	Partnership development

The existence of explicit defined guidance, which has been successfully many times verified in the industry, led to the decision to implement QMS according to the ISO 9000 concept at VSB - TUO. There are no principal reasons why the benefits of implementation of QMS in industry would differ in the case of the university. The decision to implement QMS according to ISO 9001 was supported by the existence of ISO 9001 registration. The ISO 9001 certificate is outstanding supporting material. It is evidence that proclaims the university is being properly managed, the needs of their customers are identified and the environment to satisfy them is established.

To utilize the good practices from industry the management of VSB–TUO has employed the quality manager that had the long-term experience with QMS implementation and maintenance at the first class manufacturing company that was awarded by the Czech Republic National Quality Award 2001.

VSB-TUO is a huge institution with lot of various activities. The implementation of QMS in whole organisation simultaneously could be risky. The experiences from the implementation of QMS in industry are not fully transmitted into the university environment. There are at least two important differences:

- The cycle time of product realisation is significantly longer than in industry.
- The members of university staff and academic freedom.

It was the reason why we split the implementation of QMS into several stages. As each faculty is a relative autonomous part of the university, the first stage (2004) was the implementation of QMS at a selected faculty as a pilot project. This stage was successfully terminated and **Faculty of Electrical Engineering and Computer Science was the first faculty in the Czech Republic that received the ISO 9001 certificate.**

The experiences from pilot project were used during second stage (2005-2006), implementation of QMS at next faculties with utilisation of the experiences from first stage. Final third stage (2007) was the implementation of QMS at the administration and executive part of whole university.

Each stage consisted of two phases:

- The preparation phase
- The implementation phase

The preparation phase included 5 steps:

1. The decision of faculty/university management about implementation of QMS
2. The declaration of mission , vision and strategy (quality policy)
3. The definition of project team for implementation of QMS
4. The definition of terms
5. The allocation of resources (financial, HR, ...)

The declaration of vision, mission and quality policy was fundamental step. They were formulated by management of faculty/university and communicated. To reach the commitment of staff, the discussion on the meetings proceeded. The commitment to quality policy was the base for definition of quality goals on the faculty or university level. The quality goals were subsequently disseminated to department level and linked with personnel goals.

The implementation phase consisted of 7 steps:

1. The training the staff about QMS
2. The implementation of process approach. It consist of :
 - a. *Identification of processes and definition of the process map*
 - b. *Definition and documentation of processes*
 - c. *Definition of process performance criteria*
3. The comparison of existing state with ISO 9001 requirements
4. The implementation so far missing procedures (control of documents and records, internal audits, correctives action, preventive actions)
5. The assessments of process performance and quality system review
6. The implementation of actions to improve the system performance
7. The certification of QMS.

Processes at the faculty level were divided into three basic groups:

- Customer related processes (education – bachelor, master and doctoral level, R&D activities, and cooperation with business and public sector)
- Managing processes (strategy management of faculty, operational management of faculty)
- Supporting processes (support of education process, support of R&D, purchasing, control of information system.)

There are different **processes at university level**. The faculties are looked as the internal customers of university. It means the university supports the faculties. The main, customer orientated processes from the point of view of university, are processes of resource management:

- finance management
- facility management
- HR management
- IT management

These resource management processes are executed and controlled by force of strategic management and operational management processes at the university level.

The descriptions of all existing processes and implementations of ISO 9001 required procedures were followed by assessments of the process performance through the defined process performance criteria. These process performance measurements were completed by customer satisfaction measurements. We evaluated the satisfaction of:

- students during their study at the university,
- students after some years of their professional career
- employers with graduate's skills
- business and public sector partners

These measurements were, together with internal audits findings, the bases for analysis. The results of analysis defined area for improvement.

4. THE WAY TO EXCELLENCE

The ISO 9001 approach is focused to the customer needs. The university management system has to be oriented not only to their customers but also to their stakeholders (interested parties) – TQM approach. The ISO 9004 offers the guidance for performance improvements by including the needs of stakeholders. Both of the standards, ISO 9001 and 9004, do not offer the powerful instrument for evaluation of maturity of management system. Therefore we were looking for some efficient instruments for university management system assessment, which can describe the university life more complex. Because we are from the beginning of the management improvement focused to the use of industrial standards, it is not surprising, that we choose very complex industrial quality assessment system based on the EFQM Excellence Model (EFQM, 2003), see Figure 1. This model was also rearranged for education institutions (Centre for Integral Excellence Sheffield Hallam University, 2003), (TRIS-EFQM, 2003).

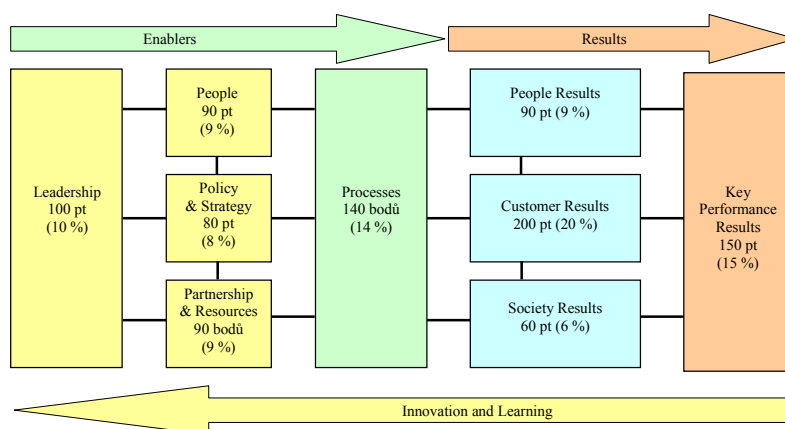


Figure 1 – EFQM Excellence Model (EFQM, 2003)

The progress of implementation of TQM approach at the VSB-TUO was the nearly the same as in the case of implementation of QMS according to ISO 9000. We have started at selected faculty as a pilot project and we continue at next faculties with utilizations of the experiences from pilot stage.

Significant motivation for orientation to the complex quality comprehension was the Program of the Czech Republic National Quality Award, which was in year 2006 opened for non-profit organization and extended by two categories – based on the CAF Model and based on the EFQM Model Excellence.

Faculty of Mechanical Engineering was the pilot faculty where we started with implementation of TQM philosophy. This faculty applies into the Program of the Czech Republic National Quality Award 2006 - part assessment based on EFQM Model Excellence.

Many analyses were done during the self-assessment process. The most significant weaknesses and threads were selected, analysed and activities to their removal was run very fast. Many uncertainties were eliminated by new analyses by questionnaires for graduates, new students and unsuccessful students. Many external analytical projects were joined and supported, like REFLEX focused to the students graduated in the past three years, graduate employability, students assessment project realized by the ACSA – Academic Centre of Students Activities in the same time at all universities in the Czech Republic. The next important area which was omitted in the past time was collaboration with suppliers; especially it means collaboration with the high schools. Project called “Partnership with high schools” was started on the end of year 2006 by the concrete offers for their study support like special excursions to the faculty labs, university teachers lectures focused to actual technical problems and news and other real collaboration support.

Based on evaluation of self-assessment report, followed by site visit of assessors, the Faculty of Mechanical Engineering was awarded by - “Recognised for Excellence-2006” level. The feedback from site visit was recognised very useful. Other possibilities for improvement were identified.

The next step was dissemination of TQM approach at Faculty of Economics and Faculty of Mining and Geology. Faculty of Mechanical Engineering and Faculty of Mining and Geology apply into the Program of the Czech Republic National Quality Award 2007 - part assessment based on EFQM Model Excellence and were successful. Faculty of Mining and Geology was awarded by - “Recognised for Excellence-2007” and **Faculty of Mechanical Engineering become ” Award –winer 2007 – category public sector ”**. It was the first time the university was awarded by this prestigious award.



Fig.2. The representatives of VSB–TUO are awarded by Czech Republic National Quality Award 2007 at Spanish hall of Prague Castle.

The experiences with implementation of QMS at university environment are recognised very interesting also for all other universities. The main outcomes were presented at the International conference Principia Cybernetica (Farana, 2005), International Conference on Engineering Education (Farana, 2006) and 7st International Conference of Quality Managers (Hutyra, 2006)

6. SUMMARY.

The implemented QMS brings the benefits both to customers and stakeholders of the university (students, employers, society), and to university itself. The results of the implemented TQM approach at the VSB-TUO and participation in the Program of the Czech Republic National Quality Award are very positive. The orientation to the complex quality improved the university life, their processes and efficiency.

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